

CLAIMS

I claim:

1 1. A welding power source/capable of
2 receiving a range of input voltages, comprising:
3 an input rectifier configured to receive an ac
4 input and providing a first dc signal;
5 a dc voltage stage configured to receive the
6 first dc signal and providing a second dc signal;
7 an inverter configured to receive the second dc
8 signal and providing a second ac signal and
9 configured to receive at least one control input;
10 an output transformer configured to receive the
11 second ac signal and providing a third ac signal
12 having a current suitable for welding;
13 an output circuit configured to receive the
14 third ac signal and providing a welding signal;
15 a controller configured to provide at least one
16 control signal to the inverter; and
17 an auxiliary power controller configured to
18 receive a range of input voltages and providing a
19 control power signal to the controller.

1 2. The apparatus of claim 1, wherein the
2 auxiliary power controller is capable of providing the
3 control power signal at a preselected control signal
4 voltage, regardless of the magnitude of the ac input
5 signal.

1 3. The apparatus of claim 2, further
2 including an auxiliary transformer with a plurality of
3 primary taps, wherein the auxiliary power controller is
4 in electrical communication with the plurality of primary
5 taps.

1 4. The apparatus of claim 1, wherein the dc
2 voltage stage includes a boost circuit.

1 5. The apparatus of claim 1, wherein the
2 inverter includes a pulse width modulator.

1 6. The apparatus of claim 1, wherein the
2 range of input voltages is 230 volts to 575 volts.

1 7. The apparatus of claim 1 wherein the
2 output circuit includes a rectifier.

1 8. The apparatus of claim 1 wherein the
2 output circuit includes a cycloconverter.

1 9. A method of providing a welding current
2 from a range of input voltages, comprising:
3 rectifying an ac input and providing a first dc
4 signal;
5 converting the dc signal to a second ac signal;
6 transforming the second ac signal into a third
7 ac signal having a current suitable for welding; and
8 receiving the ac input and providing an
9 auxiliary power signal source at a preselected
10 control power signal voltage, regardless of the
11 magnitude of the ac input signal.

SUB
B4

1 10. The method of claim 9, wherein the step of
2 converting the dc signal includes the steps of converting
3 the dc signal to a second dc signal and inverting the
4 second dc signal to provide the second ac signal.

1 11. The method of claim 9 further including
2 the step of providing control signals to an inverter.

1 12. The method of claim 9, wherein the step of
2 providing the auxiliary power signal includes the step of
3 transforming the ac input signal.

1 13. The method of claim 10, wherein the step
2 of converting the first ac signal to a second dc signal
3 includes boosting the voltage of the first dc signal.

1 14. The method of claim 10, wherein the step
2 of inverting includes the step of pulse width modulating.

1 15. The method of claim 10 further including
2 the step of rectifying the third ac signal.

1 16. The method of claim 10 further includes
2 the step of cycloconverting the third ac signal.

1 17. A welding power source for providing a
2 welding current from a range of input voltages,
3 comprising:
4 rectifier means for receiving an ac input and
5 providing a first dc signal;
6 converting means for converting the dc signal
7 to a second ac signal;
8 transforming means for transforming the second
9 ac signal into a third ac signal having a current
10 suitable for welding;
11 output means for providing a welding current;
12 and
13 auxiliary power means for receiving the ac
14 input and providing an auxiliary power signal at a
15 preselected control power signal voltage, regardless
16 of the magnitude of the ac input signal.

1 17. The apparatus of claim 16, wherein the
2 means for converting includes means for converting the dc
3 signal to a second dc signal and means for inverting the
4 second dc signal to provide the second ac signal.

1 18. The apparatus of claim 17 further
2 including means for providing control signals to an
3 inverter.

1 20. The apparatus of claim 17, wherein the
2 means for providing the auxiliary power signal includes
3 ^{SUB} means for transforming the ac input signal into the
4 ^{B57} auxiliary power signal.

1 ²⁰ 21. The apparatus of claim ¹⁶ 17, wherein the
2 means for converting the dc signal to a second dc signal
3 includes means for boosting the voltage.

1 ²¹ 22. The apparatus of claim ¹⁶ 17, wherein the
2 means for inverting includes means for pulse width
3 modulating.

1 ²² 23. The apparatus of claim ¹⁶ 17, wherein the
2 output means includes means for rectifying the third ac
3 signal.

1 ²³ 24. The apparatus of claim ¹⁶ 17, wherein the
2 output means includes means for cycloconverting the third
3 ac signal.